REMARKS

Applicants have amended the claims to delete reference numerals and multiple dependency, to improve language and to recast the claims in a form not limited by 35 USC 112, sixth paragraph. These amendments do not narrow the scope of the claims.

Attached hereto is a marked-up version of the changes made to the claims by this amendment, captioned "**Version with markings to show changes made**".

Early action allowing claims 1-36 in this application is solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952**, Ref. 245402004400

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

1. (Amended) Exercise equipment, comprising:

a work load [means (9)] device providing a variable work load;

a physiological signal measurement [means (1)] unit for noninvasively measuring a physiological signal during an exercise involving said work load [means (9)] device; and

a load variation rate decision [means (6)] unit driven by [a] the physiological signal obtained during the exercise[, to determine] that determines a load variation rate of an incremental or decremental load[, said load variation rate decision means (6) changing] and changes a work load at said load variation rate.

2. (Amended) The exercise equipment of claim 1, wherein said physiological signal is [one of] an electrocardiographical signal [and] or a pulsation signal.

3. (Amended) The exercise equipment of claim 1, wherein said physiological signal is a heart rate variability signal obtained from an electrocardiographical signal.

4. (Amended) The exercise equipment of claim 3, wherein said heart rate variability signal is a heart rate variability power signal.

5. (Amended) The exercise equipment of claim 3, wherein said heart rate variability signal [is] indicates entropy of heart rate variability.

6. (Amended) The exercise equipment of claim 1, wherein said physiological signal is a signal denoting a power spectrum of heart rate variability.

7. (Amended) The exercise equipment of claim 1, wherein said physiological signal [is both of at least one of] comprises a heart rate signal obtained from an electrocardiographical signal and a pulse count signal obtained from a pulsation signal, and a heart rate variability signal is obtained from the electrocardiographical signal.

8. (Amended) The exercise equipment of claim 7, wherein said heart rate variability signal is a heart rate variability power signal.

9. (Amended) The exercise equipment of claim 7, wherein said heart rate variability [is] signal denotes entropy of heart rate variability.

10. (Amended) The exercise equipment of claim 1, wherein said physiological signal [is both of at least one of] comprises a heart rate signal obtained from an electrocardiographical signal, [and] a pulse count signal obtained from a pulsation signal[,] and a signal denoting a power spectrum of heart rate variability.

11. (Amended) An apparatus estimating a physical fitness level, comprising:

a physiological signal measurement [means (1)] unit noninvasively measuring a physiological signal during an exercise;

a load variation rate decision means [(6)] unit driven by said physiological signal obtained during the exercise[, to determine] that determines a load variation rate of an incremental or decremental load; and

a physical fitness level estimation [means (6)] unit estimating a physical fitness level from a relationship at said determined load variation rate between a work load and a heart rate during an exercise [with said load incremented or decremented at said load variation rate determined].

12. (Amended) An apparatus determining an exercise intensity, comprising:

a physiological signal measurement [means] unit noninvasively measuring a physiological signal during an exercise;

a load variation rate decision [means (6)] unit driven by a physiological signal obtained during the exercise[, to determine] that determines a load variation rate of an incremental or decremental load; and

an exercise intensity decision [means (6)] unit determining an optimal exercise intensity at said determined load variation rate from a relationship between a work load and a heart rate variability during an exercise [with said load incremented or decremented at said load variation rate determined].

13. (Amended) The apparatus of claim 12, wherein said heart rate variability [is] denotes a heart rate variability power.

14. (Amended) The apparatus of claim 12, wherein said heart rate variability [is] denotes entropy of heart rate variability.

15. (Amended) An apparatus determining an exercise intensity, comprising:

a physiological signal measurement [means] unit noninvasively measuring a physiological signal during an exercise;

a load variation rate decision [means (6)] unit driven by a physiological signal obtained during the exercise[, to determine] that determines a load variation rate of an incremental or decremental load; and

an exercise intensity decision [means (6)] unit determining an optimal exercise intensity at said determined load variation rate from a relationship between a work load and power spectrum of heart rate variability during [an] the exercise [with said load incremented or decremented at said load variation rate determined].

16. (Amended) [Exercise] The exercise equipment of claim 11, further comprising a work load [means (9)] device providing a variable work load [and the apparatus of any of claims 11, 12 and 15],

wherein said work load [means (9)] device changes a work load to reflect [one of] a physical fitness level obtained from the [apparatus estimating a] physical fitness level [and]

estimation unit or an exercise intensity obtained from the [apparatus determining an] exercise intensity decision unit.

17. (Amended) A method of determining an exercise intensity, [of] comprising:

providing exercise equipment having a storage unit [(6)] having stored therein a plurality of physiological-signal variation patterns obtained during an exercise [having] against a load,

noninvasively measuring a physiological signal during [an] the exercise [having a load],

determining [said] a physiological-signal variation pattern by matching a pattern [in] of variation of said measured physiological signal [obtained in said measuring during the exercise having said load] with said stored physiological-signal variation patterns, and

determining an appropriate exercise intensity [with a] based on the determined pattern [taken into consideration].

18. (Amended) The method of claim 17, wherein said variation pattern is determined [in] during [a warmup from] a predetermined time interval associated with a work load increasing or from a physiological signal variation rate for each work load value interval.

19. (Amended) The method of claim 17, wherein said physiological signal is [one of] an electrocardiographical signal [and] or a pulsation signal.

20. (Amended) The method of claim 17, wherein said physiological signal is a heart rate variability signal obtained from an electrocardiographical signal.

21. (Amended) The method of claim 20, wherein said heart rate variability signal [is] indicates heart rate variability power.

22. The method of [any of claims] claim 17[-20], [wherein] further comprising determining said appropriate exercise intensity corresponding to said [variation] determined pattern [is determined] by [a method of] an operation corresponding to said [variation] determined pattern.

23. (Amended) Exercise equipment, comprising:

a load device [(9)] providing a variable load,

a storage unit [(6)] having stored therein a plurality of physiological-signal variation patterns obtained during an exercise [having] against a load,

a physiological signal measuring [means (1)] unit measuring a physiological signal invasively over time,

a decision [means] unit determining [said] a physiological-signal variation pattern by matching a pattern [in] of variation of said measured physiological signal [obtained by said physiological signal measuring means (1) during the exercise having said load] with said stored physiological-signal variation patterns, and

an exercise intensity determination [means (6)] unit determining an appropriate exercise intensity [with said pattern] based on said determined pattern [taken into account], wherein said load device provides a load set to correspond to said exercise intensity determined by said exercise intensity determination [means (6)] unit.

24. (Amended) Exercise equipment, comprising:

a load device [(9)] providing a variable load,

a storage unit [(6)] having stored therein a plurality of physiological-signal variation patterns obtained during an exercise [having] against a load,

a physiological signal measuring [means (1)] unit measuring a physiological signal invasively over time,

a decision [means] unit determining [said] a physiological-signal variation pattern by matching a pattern [in] of variation of said measured physiological signal [obtained by said physiological signal measuring means (1) during the exercise having said load] with said stored physiological-signal variation patterns, and

a physical condition determination [means (6)] unit determining a physical condition from said determined pattern [determined].

25. (Amended) The exercise equipment of [any of claims] claim 23 [and 24], wherein said physiological signal is a heart rate variability signal obtained from an electrocardiographical signal.

26. (Amended) An apparatus providing [an] assistance [to determine] in determining a physical condition, comprising:

a storage unit [(6)] having stored therein a plurality of physiological-signal variation patterns obtained during an exercise [having] against a load,

a physiological signal measuring [means (1)] unit measuring a physiological signal invasively over time,

a variation pattern determination [means (6)] unit determining [said] a physiological-signal variation pattern by matching a pattern [in] of variation of said measured physiological signal [obtained by said physiological signal measuring means (1) during the exercise having said load] with said stored physiological-signal variation patterns, and

an output [means (6)] unit outputting said determined pattern [determined].

27. (Amended) The apparatus of claim 26, wherein said physiological signal is a heart rate variability signal obtained from an electrocardiographical signal.

28. (Amended) A measurement apparatus, comprising:

a storage unit [(6)] having stored therein a plurality of physiological-signal variation patterns obtained during an exercise [having] against a load,

a physiological signal measuring [means (1)] unit measuring a physiological signal invasively over time,

a decision [means (6)] unit determining [said] a physiological-signal variation pattern by matching a pattern [in] of variation of said measured physiological signal [measured by said physiological signal measuring means (1) during the exercise having said load] with said stored physiological-signal variation patterns,

a physical condition determination [means (6)] unit determining a physical condition from said determined pattern [determined], and

an output [means] unit outputting said determined physical condition [determined].

29. (Amended) The measurement apparatus of claim 28, wherein said physiological signal is a heart rate variability signal obtained from an electrocardiographical signal.